



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,433	11/21/2005	Sang-Kyu Lee	NAMNP0103US	5833

7590 07/23/2010  
Neil A DuChes  
Renner Otton Boisselle & Sklar  
1621 Euclid Avenue  
19th Floor  
Cleveland, OH 44115

EXAMINER
----------

JOIKE, MICHELE K

ART UNIT	PAPER NUMBER
----------	--------------

1636

MAIL DATE	DELIVERY MODE
-----------	---------------

07/23/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/534,433	<b>Applicant(s)</b> LEE ET AL.	
	<b>Examiner</b> Michele K. Joiike	<b>Art Unit</b> 1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8, 14, 16 and 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8, 14, 16, 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 19, 2010 has been entered.

Claims 8, 14, 16 and 18 are pending and under consideration in the instant application. Any rejection of record in the previous Office Action, mailed January 20, 2010 that is not addressed in this action has been withdrawn.

### ***Claim Objections***

Claim 16 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 8 has the binding complex delivered from an extracellular environment. In claim 16, the binding complex can be delivered in vitro or in vivo.

Claims 8, 14, 16 and 18 are objected to because of the following informalities: Articles needed to be added to the claims. In claim 8, line 2, there should be an "an" in front of "eukaryotic". In claim 8, line 3, there should be an "a" in front of "peptide". In

Art Unit: 1636

claim 8, line 5, there should be an "a" in front of "DNA". In claim 8, line 6, there should be an "a" in front of "DNA" and an "an" in front of "expression". In claim 8, line 12, there should be a "the" in front of "expression". In claim 8, line 16, there should be a "the" in front of "cytoplasm". In claim 14, line 2, there should be an "of" in front of "combining" and an "a" in front of "NLS". In claim 14, line 3, there should be a "the" in front of "PTD" and a "the" in front of "fusion". In claim 16, line 2, there should be a "the" in front of "cytoplasm". In claim 18, line 2, there should be a "the" in front of "cytoplasm".

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8, 14, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ye et al in view of US 2008/0097081.

Ye et al (Phar. Res. 19(9): 1302-1309, 2002, specifically pp. 1302-1305, especially Fig. 1) teach a binding complex comprising a chimeric protein (protein fusion) comprising an HA epitope, a Gal4(DBD)-VP16 and a His tag. The chimeric protein can also include a Tat or VP22. Ye et al teach a vector (peptide transducing recombinant (PTD) expression vector) encoding the above complex, including a promoter, that is expressed in bacteria cells. The fusion protein is then purified and added to the medium of eukaryotic cells with a reporter plasmid encoding a luciferase gene linked to five tandem repeats of the Gal4 binding site (inducible promoter) (p. 1304-05). The fusion protein is transported into the cell, and binds to the reporter plasmid binds, completing the binding complex. See specifically Fig. 1. The vector encoding the chimeric protein can also contain a sequence encoding a nuclear localization sequence (p. 1303). However, while they teach extracellular delivery of the fusion protein, they do not teach extracellular delivery of the whole binding complex.

US 2008/0097081 (especially paragraphs 82, 83 and 178) teaches a fusion protein with a PTD bound to nucleic acid molecules that are delivered from an extracellular environment. Methods of delivery include parenteral, e.g., intravenous, intradermal, subcutaneous, oral (e.g., inhalation), transdermal (topical), transmucosal, and rectal administration.

It would be obvious to deliver the binding complex from an extracellular environment because US 2008/0097081 teaches that biologically active fusion proteins,

Art Unit: 1636

comprising transduction domains, for direct delivery of proteins into human patients in the context of protein therapy are known in the art. These transducing proteins have been shown to be able to carry large biomolecules from the extracellular environment directly into the cytoplasm and nucleus of cells, both in vivo and in vitro. One would be motivated because fusion proteins with PTDs have the ability to increase the delivery of plasmid DNA to the nuclei of cells in vivo and thereby increase gene expression and have been used to address a number of biological questions related to cell cycle progression and apoptosis. Since US 2008/0097081 also teaches that fusion proteins with PTDs are able to carry large biomolecules from an extracellular environment, and a plasmid is a large biomolecule, a fusion protein with a PTD transporting a plasmid from an extracellular environment into the cytoplasm or nucleus would yield a predictable result. Given the teachings of the prior art and the level of the ordinary skilled artisan at the time of the applicant's invention, it must be considered, absent evidence to the contrary, that said skilled artisan would have had a reasonable expectation of success in practicing the claimed invention.

***Allowable Subject Matter***

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michele K. Joike whose telephone number is (571)272-5915. The examiner can normally be reached on M-F, 10:00-6:30.

Art Unit: 1636

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low can be reached on (571)272-0951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michele K. Joike/  
Primary Examiner, Art Unit 1636

Michele K. Joike  
Primary Examiner  
Art Unit 1636